

CLAIMS

1. A substrate processing apparatus, comprising:

a reaction container which accommodates a substrate, to which a plurality of reaction gases are supplied, and which forms a space where said substrate is subjected to desired processing,

an exhaust port which is opened in said reaction container for exhausting gas from said reaction container, and

a gas supply system for supplying at least the plurality of reaction gases to said reaction container, wherein

said gas supply system comprises:

a cleaning gas supply unit for supplying cleaning gas which removes accretion adhering to an inner side of said reaction container by subjecting said substrate to the desired processing,

a post-processing gas supply unit for supplying post-processing gas which can remove an element included in the cleaning gas remaining in said reaction container after the accretion is removed by supplying the cleaning gas, and

said post-processing gas includes all reaction gases used when said substrate is subjected to the desired processing.

2. A substrate processing apparatus as recited in claim

1, wherein said post-processing gas supply unit includes exclusive supply nozzles for independently supplying each of the reaction gases, and when the reaction gases are to be supplied as the post-processing gases, the reaction gases are alternately supplied from the exclusive supply nozzles.

3. A substrate processing apparatus as recited in claim 2, wherein each of the reaction gases supplied from said post-processing gas supply unit remove the element remaining in said exclusive supply nozzles and said reaction container, and form a desired film in said reaction container.

4. A substrate processing apparatus as recited in claim 3, wherein the plurality of reaction gases supplied from the exclusive supply nozzles are a gas including silicon, and ammonia gas activated by plasma.

5. A substrate processing apparatus as recited in claim 4, wherein the cleaning gas is a gas including fluorine, and the gas including fluorine is supplied from the exclusive supply nozzle which supplies a gas including silicon.

6. A substrate processing apparatus as recited in claim 4 or 5, wherein the gas including silicon is SiH_2Cl_2 .

7. A substrate processing apparatus as recited in claim 5, wherein the gas including fluorine is NF_3 or ClF_3 .

8. A substrate processing apparatus which supplies a plurality of reaction gases alternately and forms a thin film on a substrate, comprising:

a reaction container,

a plurality of exclusive supply nozzles for respectively and exclusively supplying the plurality of the reaction gases, and

a control apparatus for controlling the substrate processing apparatus such that cleaning gas is supplied from one of the supply nozzles into said reaction container at the time of cleaning, all reaction gases used for processing a substrate are alternately supplied into said reaction container from the exclusive supply nozzles after the cleaning gas is supplied and before the substrate is processed.